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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,222	10/21/2003	Yihong Gong	CA1216	9532
23493	7590	01/10/2006		
SUGHRUE MION, PLLC 401 Castro Street, Ste 220 Mountain View, CA 94041-2007				
			EXAMINER UPRETI, ASHUTOSH	
			ART UNIT 2623	PAPER NUMBER

DATE MAILED: 01/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/691,222	<b>Applicant(s)</b> GONG ET AL.	
	<b>Examiner</b> Ashutosh Upreti	<b>Art Unit</b> 2623	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 September 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 18-30 and 48-72 is/are pending in the application.
- 4a) Of the above claim(s) 25,26,55,56 and 65-72 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-24,27-30,48-54 and 57-64 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments filed September 14, 2005 have been fully considered but they are not persuasive.

In view of applicant's amendments, the 35 USC 112 rejections given in the previous office action are withdrawn.

Regarding the 35 USC 102 rejection of claim 18, the applicant argues that Nagasaka (USPN 5,818,439) does not teach or suggest "the computation of a similarity between a plurality of frames and a frame that precedes the plurality of frames". The examiner notes that the claim does not actually state such a limitation. The claimed limitation the applicant seems to be referring to states "computing a similarity between each of said plurality of frames and a frame preceding said each of said plurality of frames in time". The examiner reads this claim language to mean that the similarity computation is between each individual frame and its preceding frame, and that this computation is conducted a plurality of times i.e. for each frame in the plurality of frames. If the applicant means differently, then the claim language would need to be modified, though no new matter, that is not disclosed in the specification, may be added. Given the examiner's above explanation, Nakajima as previously cited, discloses the limitation of "the computation of a similarity between a plurality of frames and a frame that precedes the plurality of frames" in column 8, lines 13-30.

All other arguments regarding the remaining 35 USC 102 rejections and the 35 USC 103 rejections seem to be based on the above argument relating to claim 18. The

examiner disagrees with the arguments for the same reasons as given in the discussion of claim 18 above.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 18, 24, 27-30, 48, 54 and 57-64 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagasaka et al. (USPN 5,818,439, hereafter Nagasaka).

3. Regarding claim 18, Nagasaka discloses a method for segmenting an input video sequence, said input video sequence comprising a plurality of frames, said plurality of frames being grouped into a plurality of video shots (column 2, line 37-42), said method comprising: (a) computing a similarity between each of said plurality of frames and a frame preceding said each of said plurality of frames in time (column 8, line 13-30); (b) segmenting (dividing) said input video sequence into said plurality of video shots according to said computed similarity (column 8, line 1-8).

4. Regarding claim 48, Nagasaka discloses a computer-readable medium containing a program (column 4, line 65-column 5, line 13) for segmenting an input video sequence, said input video sequence comprising a plurality of frames, said plurality of frames being grouped into a plurality of video shots (column 2, line 37-42), said program comprising: (a) computing a similarity between each of said plurality of

Art Unit: 2623

frames and a subsequent in time (current) frame (column 8, line 13-30); (b) segmenting said input video sequence into a plurality of shots according to said computed similarity (column 8, line 1-8).

5. Regarding claims 24 and 54, Nagasaka discloses (c) extracting features (representative images) from each of said plurality of video shots (column 5, line 24-37; column 8, line 34-55).

6. Regarding claims 27 and 57, Nagasaka discloses that in said (b) said computed similarity (degree of difference  $R_{cp}$ ) is compared to at least a first threshold similarity ( $th1$ ) and a second threshold similarity ( $th2$ ), and said input video sequence is segmented according to a result of said comparison (column 8, line 48-column 9, line 24).

7. Regarding claims 28 and 58, Nagasaka discloses that if in said (b) said computed similarity ( $R_{cp}$ ) is below a first threshold similarity ( $th1$ ), said each of said plurality of frames is put into one of said plurality of video shots (one is added to  $n$ ) containing said precedent in time frame (column 8, line 61-65).

8. Regarding claims 29 and 59, Nagasaka discloses that if in said (b) said computed similarity ( $R_{sum}$ ) is above a second threshold similarity ( $th2$ ), said each of said plurality of frames is designated as a shot boundary (column 8, line 65-column 9, line 3).

9. Regarding claims 30 and 60, Nagasaka discloses that if in said (b) said computed similarity ( $R_{cp}$ ) is between a first threshold similarity ( $th1$ ) and a second threshold similarity ( $th4$ ), said each of said plurality of frames is put into one of said

plurality of video shots according to a further analysis performed using additional frames from said plurality of frames (column 10, line 8-18).

10. Regarding claims 61 and 63, Nagasaka discloses (c) extracting features (representative images) from each of said plurality of video shots and using said extracted features to index said plurality of video shots (column 5, line 24-37; column 8, line 1-55).

11. Regarding claims 62 and 64, Nagasaka discloses that said extracted features are features of a video frame representative of said each of said plurality of video shots (column 5, line 24-37).

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 19-23 and 49-53 rejected under 35 U.S.C. 103(a) as being unpatentable over Nagasaka as applied to claims 18 and 48 above, and further in view of Lim (USPN 6,574,378).

14. Regarding claims 19, 20, 49 and 50, Nagasaka does not disclose that said similarity is calculated using a refined feature space representation of said input video sequence, or that said refined feature space representation is created using a singular value decomposition of said input video sequence. Lim discloses a method and apparatus for indexing and retrieving images using visual keywords wherein during

Art Unit: 2623

indexing (or retrieval) of a visual document, a spatial aggregation map (SAM) of occurrences of visual tokens is created which represents a visual-content signature for the visual document (column 9, line 14-28). Subsequently, the SAM is input to a singular-value-decomposition (SVD) based coding module to produce a refined feature (reduced dimensionality) space representing a coded description of a visual document wherein a frequency matrix  $X$  associates visual keywords and visual documents by concatenating linearized SAM vectors of visual documents as column vectors of the matrix  $X$  (column 9, line 29-37). It would have been obvious to one of ordinary skill in the art at the time the invention was made to obtain a refined feature space using a singular value decomposition of an input video sequence as taught by Lim in order to reduce the dimensionality and possibly the noise in the spatial aggregation map to produce a coded description of a visual document (column 9, line 29-33).

15. Regarding claims 21 and 51, Nagasaka discloses that said singular value decomposition (see above discussion of claims 20 and 50) is performed using frames selected with a fixed interval from said input video sequence (column 9, line 61-column 10, line 18).

16. Regarding claims 22 and 52, Lim discloses that said selected frames (linearized SAM vectors) are arranged into a feature frame matrix ( $X$ ), and wherein said singular value decomposition is performed on said feature frame matrix (column 9, line 33-44).

17. Regarding claims 23 and 53, Lim discloses that said singular value decomposition produces a matrix ( $X$ ), each column of said matrix comprising a frame

Art Unit: 2623

(SAM vectors of visual documents) in a refined feature (reduced dimensionality) space corresponding to a frame in said input video sequence (column 7, line 33-44).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ashutosh Upreti whose telephone number is (571) 272-7428. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 2623

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AU

AU  
January 4, 2006

JINGGE WU  
PRIMARY EXAMINER